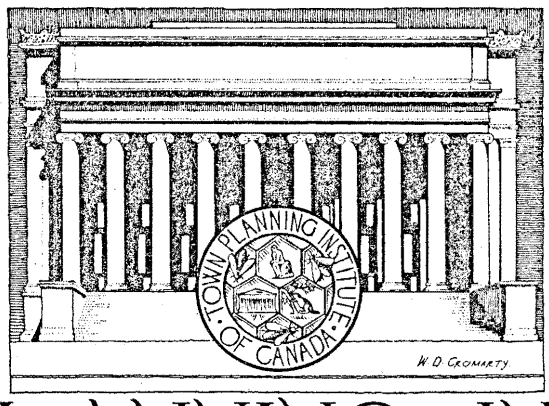
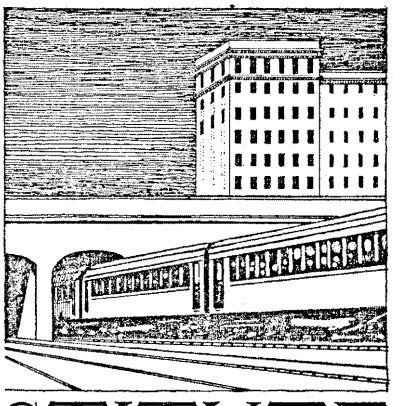
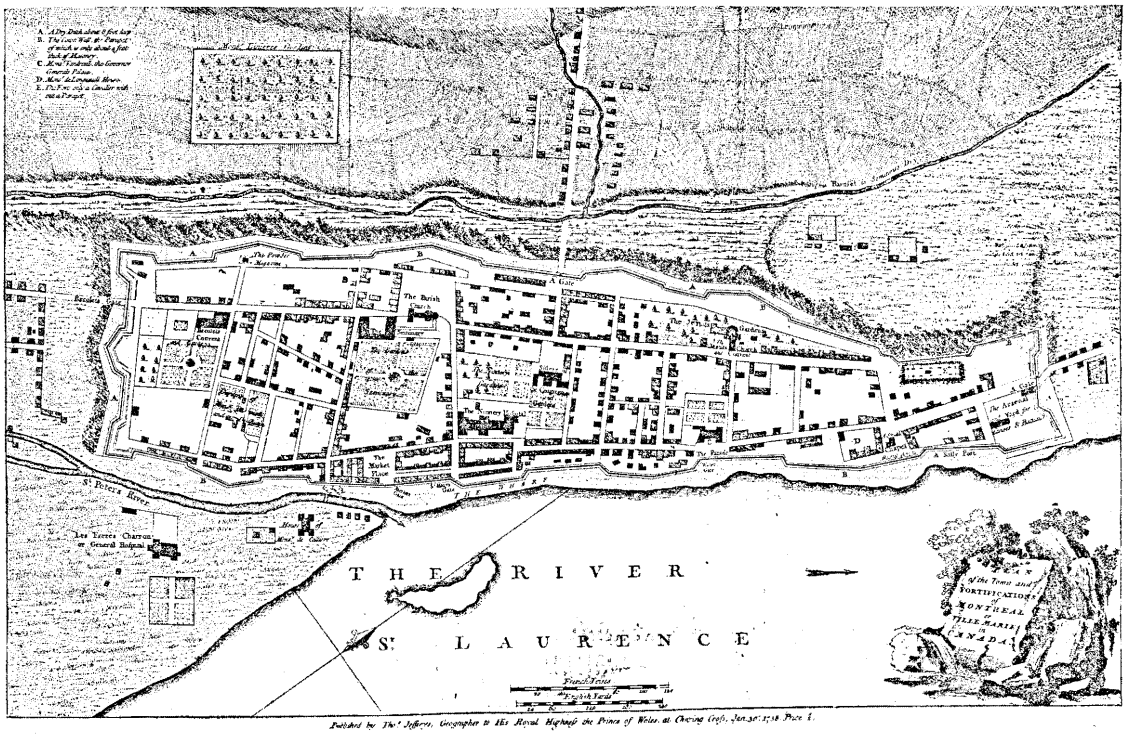
THE JOURNAL





TOWN PLANNING INSTITUTE OF CANADA.

VOL. 1. OTTAWA, DECEMBER 1921. NO. 7.



MONTREAL IN 1760—AT THE PERIOD OF THE CAPITULATION

Comparing the plan of Montreal in 1760 with the present map of the city one cannot fail to be impressed by the fact that there was a certain feeling after town planning in those early days which was not sustained by the successors of the first town planners of Montreal. The relation of this plan to present conditions is set forth on another page and the drift of the argument ends at the immediate need of a comprehensive plan for the future development of the metropolis of Canada.

EDITORIAL

Montreal Number.

The present issue of The Journal is devoted to town planning problems of Montreal, as those problems were stated at the conference held at the Place Viger Hotel, Montreal, on September 29, 30 and October 1. While there is a certain amount of truth in the claim often made that all cities have individualities of their own and problems special to their constitutions, it is, however, true that the development of all Canadian cities have been affected by certain common habits and tendencies that have often produced civic confusion and needless destruction of those amenities that make life more interesting and efficient, and in the long run become the condition of enduring prosperity. Mr. Horace MacFarland, president of the American Civic Federation, has stated that it is always the beauty of his town, his state or his country that makes the patriot: "Our devotion to the flag begins in that love of country which its beauty has begotten".

It is believed, therefore, that a more or less intensive study of the problems of the metropolitan city of Canada will have a special educative value even more than the discussion of general principles which have now become familiar to the readers of The Journal.

The City Improvement League.

The conference was called at the instance of the City Improvement League of Montreal and the Town Planning Institute of Canada. For the last ten years the City Improvement League, composed of a body of citizens interested in the improvement of the city, has carried on an important work in the direction of town planning education, and at different times, as in the promotion of the Metropolitan Parks Commission, has come near the realization of its aims in securing town planning legislation that will have the power and influence of law behind the vision of ameliorative education. For various reasons well known in Montreal this Commission has never had the authoritative and financial support necessary to the formation of a comprehensive plan for the future growth of the city, and the town planning bill prepared for the province of Quebec by the Commission of Conservation never became law.

The co-operation of the City Improvement League and the Town Planning Institute indicated the union of effect on the part of leading citizens who were concerned with the rational development of their city and professional town planners who had given special study to the subject.

In his opening address the chairman of the conference, Dr. E. Deville, president of the Town Planning Institute, drew special attention to the character of the City Improvement League of Montreal by showing that its committees contained representatives of business interests, child welfare, architecture and taste, town planning, civic education, civic legislation, suburban development, public service, outlying districts, gardens, greater Montreal, housing, tenant law, public health and publicity. He pointed out that those "good citizens who have at heart the progress of their city" were voluntary workers whose disinterestedness and public spirit could not be questioned.

The Purpose of the Conference.

The specific purpose of the conference was to awaken and perpetuate interest in the subject of town planning and to point out the benefits that must accrue to all great and rapidly growing cities like Montreal by the adoption of a comprehensive plan of development. Such a plan, it was contended, would be the most direct means of giving to Montreal the right to which it aspires to call itself the Paris of America. This is surely an ambition that should appeal to all "good citizens who have at heart the progress of their city."

Outline of Conference.

The program of the conference was published in our last issue, but some notes may be made here on certain points of interest. Special attention was given to enlisting the sympathies of the French speaking Canadians, who compose three fifths of the population of Montreal, and with a view to this, addresses and discussions on the first day were all conducted in French. The session was opened by Alderman Dixon, representing the Mayor of Montreal. The organizing committee consisted of Mr. James Ewing, M.E.I.C., vice-president of the Town Planning Institute, Mr. J. A Duchastel,

M.E.I.C., president of the Auto Club of Canada, Mr. Arthur Surveyor, M.E.I.C., member of the Council of the Town Planning Institute, Mr. J. R. Gardiner, architect, and Dr. W. H. Atherton, Secretary of the Montreal City Improvement League. Dr. Deville presided at the first two sessions, and in opening the conference addressed the members in French, and presented an interesting synopsis of the general aims of town planning. At the evening banquet, Mr. F. W. Stewart, president of the City Improvement League, presided. The engineering session was presided over by Mr. Walter J. Francis, vice president of the Engineering Institute of Canada.

Mr. J. E. Vanier, president de l'Association des Architectes de la Province of Quebec, was chairman of the architectural session, and at the public meeting of the second day, Mr. Victor Morin, L.L.D., S.R.S.C., président de la Société St-Jean Baptiste, was in the chair. On this occasion addresses were delivered by Mr. Noulan Cauchon, vice president of the Town Planning Institute, Mr James Ewing, Mr. W. F. Tye, past president of the Engineering Institute of Canada, and late Chief Engineer Canadian Pacific Railway. The concluding session was presided over by Mayor P. W. McLagan, of Westmount. At the final luncheon Alderman J. A. Brodeur, president of the Metropolitan Commission of the Island of Montreal, was in the chair.

By courtesy of the Montreal Harbour Commission, and under the direction of Mr. M. P. Fennell, Secretary of the Commission, the members of conference were conducted on a sail around the harbour. There was an exhibition of plans prepared by the Town Planning Division of the Dominion Parks Branch, the city of Montreal Public Works Department and others. Papers and discussions were participated in by members of the faculties of McGill University, l'Université de Montréal, and by visitors from Toronto, Ottawa and Quebec.

The conference had the sympathetic support of the Press of both languages, and received free announcements, intelligent and comprehensive reports, and the very great service of editorial discussion of the objects of their meeting. There is little doubt that the conference was a genuine success and that it will have permanent and notable results upon the future development of Montreal.

Montreal in 1760.

The old plan of Montreal, reproduced on the front page, serves to show that the early settlers had a clearer and more appreciative idea of the value of town planning than their successors, even up to the present day. The old town was conceived as an entity, walled in for defensive purposes against the marauding Indians, and while the streets are rather narrow for present day requirements they were more than sufficient for the needs of the time, and show manifest evidence of design in their lay-out. Ample provision was made for churches, convents, hospitals, market places, etc., at convenient and commanding sites, while parade grounds, gardens and other open spaces were not neglected. It is not at these earlier settlers who had not the slightest notion of the great city that would eventuate that any reproach can be made, but at those coming after them who failed to profit from the good beginning, and who neglected to rectify inevitable mistakes in time, and carry out extensions on well conceived and rational lines; and it is most of all at the present generation under whom grave civic problems have been created by indiscriminate rule-of-thumb, rectangular methods, which have made the great new city a disjointed aggregation of inharmonious parts.

CHAIRMAN'S ADDRESS

DR. E. DEVILLE.

The Scope of Town Planning.

Town planning has been defined as the exercise of the necessary foresight for the methodical and tasteful development of a town and its suburbs, according to rational rules, and having regard to the health, amenity and convenience of its inhabitants as well as their commercial and industrial progress.

The art of town planning in Canada can be applied either to the establishment of new towns in regions that are being settled, or to the improvement of existing towns and the surrounding country. In both cases there are certain general principles which must not be lost sight of. I am going to indicate some of them.

Classification of Roads and Streets.

Public roads and means of transport claim attention first of all. The system of roads must comprise certain main thoroughfares, which may be called arterial, destined to connect the currents of traffic with the great industries, the railways and canals and the centres of external population. These thoroughfares must be proportioned to the volume of

traffic and as direct as possible. It should, for example, be possible to go from Montreal to neighbouring villages more directly than by following the present roads. A considerable volume of traffic will always go over these roads and they will be those along which the tramways will circulate: it is essential then that they be carefully constructed.

Other streets serve for daily business: they permit the inhabitants to go to and return from work. It is preferable that these streets be not direct, to avoid the intrusion on them of the traffic of the great arteries and to maintain tranquility and quiet in the residential quarters. To lessen the cost of construction they are made narrower.

The railway lines should meet outside the town and converge to a small number of central stations. Above all, level crossings must be avoided. For example, if one had to rebuild Montreal one would bring the Grand Trunk to the Windsor station and suppress in this way numerous level crossings. Special branch lines are necessary to carry with a minimum of handling raw materials to the factories and remove the finished products for export.

The Use of Zoning.

The town should be divided into zones with appropriate restrictions according to the purpose of the different quarters. Industrial quarters would be placed close to the railways and waterways, preferably in the direction opposite to the prevailing winds. The lands would be divided into large parcels and everything organized with a view to economical exploitation.

The commercial quarter, generally near the centre of the town, would be exclusively reserved for business and retail trade.

The residential quarters, whether for workers or for the houses of the rich, would be rigorously protected against the intrusion of factory and commercial establishments. In each of these quarters the percentage of space built on and open spaces would be fixed by rule, as well as the maximum height of houses relatively to the category of street and the distance back from the alignment.

Suitable reserves would be made for parks and play-grounds for children, so desirable from the point of view of the health and beauty of the town. Finally, sites would be reserved for schools, libraries, markets, hospitals and churches, with one large site for a civic centre where the chief public buildings should be placed.

In the case of a town already built, as Montreal, these principles are only partially applicable. To devise a scheme of improvements which it is practicable to make, a plan of the city should be prepared indicating the present state of buildings and the ground relief by close contour lines. The preparation of such a plan has been made obligatory for towns in many countries.

I would call your attention to the fact that this conference is held under the auspices of the City Improvement League and the Town Planning Institute. The League is not, like the Town Planning Institute, an association of professional men: it makes its appeal to all good citizens who have the progress of their town at heart. A list of the committees of the League gives a good idea of its activities and its representative character. These committees and their chairmen are as follows: business men, W. Rutherford; child welfare, Dr. W. G. Kennedy; art and architecture, J. R. Gardiner; town planning, J. Ewing; civic education, Dr. B. A. Conroy; civic legislation, H. J. Elliott; suburban development, F. G. Todd; public service, Alf. Lambert; outside districts, J. Sopper; gardens, Dr. J. Reid; Greater Montreal, J. S. Morris; housing, W. H. Dandurand; tenancy law, Lt.-Col. W. Sadler; membership, J A. Lapres; health, Dr. T. E. Devlin; publicity, J. A. Fraser; reconstruction, F. Hankin; tenants and landlords, J. McNaughton; transportation, J. P. Anglin.

The enthusiasm with which the appeal of the conference has been received make us hope it will have the most happy results.

THE MONTREAL SITUATION WITH REFERENCE TO TOWN PLANNING.

BY JAMES EWING, M.E.I.C.

An intimate sketch of the town planning problems of Montreal, with sidelights for other cities of Canada.

The Rise of Montreal.

In the last thirty years the city of Montreal has grown fully five times over, or twice as fast as the Dominion of Canada itself. This astonishing development has been due, as most students of civic development will admit, much more to individual enterprise than to good guidance or good government. The basic reason for the rise of Montreal is the unique situation of the city itself, on one of the world's greatest waterways, at the head of ocean navigation, and yet hundreds of miles inland. It has thus become the main transfer point of all railroad and water borne traffic, inward and outward bound, of the larger part of a continent, and to this must be added its great natural advantage of abundance of water power, both present and potential, and its by no means to be lightly estimated steady and reliable labour market.

There is little to fear that the future growth of the city will be arrested or even in any degree lessened. Montreal will continue to grow, and it is this that brings us face to face with the question as to the manner of its growth.

Quo Vadis ?

Montreal was never designed for a really great city. It has simply happened along. If we consider it in its beginnings as an early settlement with rather narrow streets, which can still be seen in our down-town district, we shall observe this little cen-

be fringed around a series of long narrow strips of land, and we shall learn to appreciate the wisdom of the early French settlers who held the secret of co-operative farming, which is at the bottom of the successful agricultural development of the province of Quebec, and which is in striking contrast to the rule-of-thumb rectangular and sectional methods of the other more westerly provinces.

But the intrepid pioneers of these early days were not prophets, and who can blame them if they failed to foresee the wonderful destiny of the mighty city which, during the last two centuries, has sprung up on the banks of the St. Lawrence River under the shadow of Mount Royal ?

Rural and Urban Planning.

But unfortunately for us, what is so good for agricultural development is not so favorable for the convenient and orderly disposition of a great city. For the multiplicity of ownership entailed by these long narrow strips requires a strong and intelligent guiding and controlling hand in the laying out of streets, and that is what Montreal has never had, what she most needs, and what if she continues to do without will only bring her into more and deeper trouble.

Already Montreal is becoming cumbersome and unwieldy, her shoes are beginning to pinch, and she is, to use a colloquialism, "treading on her own feet." It is not to be expected that free, healthy and vigorous movement can be had under encumbrances like this, nor can we hope that this condition of things can by any possibility remedy itself. It is bound to become more and more aggravated as the city grows and traffic increases.

Street Congestion.

If we have doubt in this matter we have only to note during the rush hours the enormous glut of traffic from tram-cars, automobiles, motor trucks, cabs and delivery waggons, backed up for a couple of blocks, with the poor pedestrian dodging for his life. Clearly the streets and crossings have not been designed and proportioned to accommodate and digest such an amount of traffic.

There is also the ponderous tram-car swinging round the corner to remind us that the Tramways Company holds sway, not only over the roadway, but also over the sidewalk itself.

And as car after car gradually works its way up to the crossing, each one freighted with a seething mass of concentrated humanity, and having its exterior decorated with another contingent of quondam acrobats hanging on to the steps, after a free-for-all scrimmage between those who want to get off and those who want to get on, there is yet to be seen a goodly number of disappointed and disgruntled ones "left at the post."

It might be too optimistic to expect that even with proper and judicious town planning we should be able to eliminate the overcrowding of cars, but if we could succeed in stopping the overcrowding of streets and crossings we should then be in some sort of position to "talk" to the Tramways Company, and take away their only remaining valid excuse.

Horse Sense.

If we take a walk towards the down-town district, on the brow of the hill we see a horse struggling vainly trying to haul uphill a load about twice too heavy for it, sometimes shivering under the merciless lash of the driver. We shall notice that, if left to itself, and there is room for it, the horse will take a zigzag course, that is to say, instead of going full tilt up the face of the hill as the street has been laid out, it will seek an easier gradient in a diagonal direction. We are tempted to wonder what that poor dumb creature thinks, and what contemptuous expressions it would utter regarding the mentality of those responsible for its plight, and at the same time, we may begin to realize that town planning is not so much a matter of transcendental science or of art as it is of ordinary, every day, common horse sense.

As we reach the down-town district, perhaps the first thing we shall observe is that all the traffic is going in one direction. These are our "one way streets", not bad things in themselves as a merely temporary traffic exigency. They are, however, a self evident confession of incapacity and economic weakness and simple postponement of a better method.

Automobile Batteries.

Next we shall notice, lining the sidewalk, a long array of automobiles, laid wheel to wheel like batteries of guns, and we shall wonder what we are going to do ten years after this when the number will have multiplied manifold, unless perchance by that time the motor car will have been supplanted by the aeroplane and we may be able to get in and out of the upper windows without using the streets at all.

As we continue our journey further we come upon one of our public squares, where we might expect to see some grand old trees, fountains and monuments and we find that this too has been practically turned into an automobile parking stand.

Meditations of Maisonneuve.

We visit another ,the historic spot where the founder of Montreal, Paul Chomedy de Maisonneuve, withstood the onslaught of the marauding Indians over two hundred years ago, and where his magnificent monument by Hébert is the dominant feature of the Main Tramways Transfer Station, the marshalling ground of the noble army of strap-hangers.

I am sure if he could only see it to-day he would lay down his arms and take the first boat for France.

Nor is this all, for a little further on we reach another historic place where the tread of marching feet has echoed and re-echoed for generations, and there too we shall find the ubiquitous and all-conquering automobile occupying its section, while the remainder on certain days at least is made to serve as a huckstering market place all cluttered over with garbage.

Breakers Ahead.

We are not for a moment trying to impugn the policy of any of our civic administrations in permitting these things. We perfectly realize that under existing circumstances they have been in a manner forced on them, and we are loath to believe they are more than mere temporary expedients. They are cited simply as an indication of "Breakers ahead!" and a warning that it is time to take our bearings and try to discover some more practical, fitting and permanent solution of the difficulties confronting us.

And as possibly we have staid down town long enough to convince ourselves that from a traffic point of view at least everything is not as it should be, let us follow up one of the principal thoroughfares leading towards the upper town and there we shall find similar conditions of congestion, obstruction and delay. Indeed it is doubtful if in Montreal we can say we have a main thoroughfare worthy of the name. They are all too narrow, cribbed, cabined and confined.

Street Widths and Waste.

But if we stray over into the bordering residential sections we shall find a different state of affairs, for there the streets are all too wide, just as wide, in fact, as our principal thoroughfares and there is really no necessity for this; it is both literally and figuratively throwing money in the gutter.

To be sure a great many people believe a street can't be wide enough, until they are asked to pay for the paving and for the maintenance and renewal. Possibly it will be said, "Oh well, it is the proprietor who pays for that," but don't you believe it, for it is with that as with other things, it all comes back to the ultimate consumer, and usually it is the working man that is the goat.

Conflict of "Uses".

And as we pave these residential streets just as we do the main ones, they at once invite heavy traffic and actually become through traffic streets. Then comes the corner grocery, the fancy goods store, the Chinaman, the tobacconist and the saloon; next the industrial flat, the shirt and collar factory, the cigar and the paper box factory, with larger and heavier industries following in train. And one fine morning when you wake up you observe the men in the street digging up your beautiful pavement that you paid for in order to lay down heavier water pipes and larger sewers. And soon your rent, your taxes, and fire insurance premiums go up, and you begin to realize that all Montreal is on the move,—uptown.

The reason is that the factories down town have driven out all the respectable residents leaving a lot of tumble-down shacks that soon become infested with foreigners and the improvident, dens of misery squalor and vice, open cankerous sores, that eat into the body politic, and which are, one might say, about the most expensive and extravagant luxuries in which a city can indulge.

And it does not stay at that, for the factories soon find that the sources from which they have been drawing their labour supply is disappearing, and they start to get after it, invading the upper town districts, and leaving in their trail the slum areas they have created, and the large derelict tracts that we see of unoccupied and unproductive land.

This sort of thing is what is haled by some people as the onward March of Progress, and it is fortunate for those keen-seeing and astute enough to be able to exploit and take advantage of the constantly fluctuating land values. It may even give the appearance of plenty of business and lots of work being done; but it is all lost motion, going round and round in a circle, putting up and pulling down, building and rebuilding, so much waste and nothing accomplished that is enduring or worth while.

A Comprehensive Plan.

How much better it would be if we would have a definite plan of development to work to, putting things in the places where they rightly belong and having them stay,—put.

That is to say, segregating industrial, business and residential property to the localities where each would be mutually advantageous and least detrimental to the others.

Taking the factories, for instance, and all the industrial establishments and herding them together in districts close and convenient to the transportation systems, the railways, canals and wharves, we could give them an economical concentration of ample water and sewerage services, power, lighting and heating facilities, special fire protection, and every accommodation and help they might require. This would improve their working conditions, reduce their production costs, eliminate a vast amount of unnecessary cartage, and to advantage all around.

In addition to this it would mean a wonderful saving to the city itself, for the heavy cartage would be guided and directed along main thoroughfares proportioned and constructed to be able to relief to all the other streets which would not then be as they are now in a constant state of transition and upheaval through having new and larger water mains, sewers and power conduits put in. Fire risks would also be diminished and fire insurance premiums with them.

Even rent and taxes would be lower, for the occupation of the land and property speculators would be largely eliminated because land values would be stabilized, and undergo only a steady and gradual appreciation concomitant with the city's growth.

Besides benefiting the individual and the public generally, the city itself would soon be in a better financial position, and be able to provide automobile stands, transfer stations and market places without having to gobble up the public squares. They might be able to widen some of our main thoroughfares in a systematic way, or what is easier and just as serviceable, round off the corners of our most congested crossings, or better still provide circles introducing gyratory movement of traffic, thus lessening obstruction and minimising the risk of accident.

New main diagonal thoroughfares might be constructed at even less cost than street widening, for they could be designed to pass through least valuable property, and the enhanced value after construction might be sufficient to cover the entire outlay. These diagonals would be doing double duty of reducing the grades and shortening the distance, besides relieving the existing uptown and crosstown streets of their overburden of traffic.

Many things like these and many other devices might be used to give much needed relief and work wonderful improvement if we could only make up our minds to go about it in a systematic and comprehensive way.

The Cost of Mistakes.

Perhaps it is not forgotten, and it should not be forgotten, that only a few years ago many millions of dollars were sunk by the city in useless expropriations and clumsy and abortive attempts at street widening. And the reason is not far to seek, for instead of making a thorough diagnosis of the condition of the patient and getting down to the roots of the disease, they were only administering palliatives and treating the mere symptoms as they appeared on the surface, while the disease itself was allowed to run unmolested, eating into our very vitals, which it still continues to do.

I sometimes think that town planning is like grasping a nettle, if you do it in a gingerly way it stings you, but if you take hold of it with grim determination it will be harmless and prove all to the good.

Piecemeal Planning.

And of all the evils and bottomless sinkholes of perfectly good money, this piecemeal town planning, this tinkering, is the worst,—carrying out a bit of street widening here and street extension over there or suggesting a big boulevard somewhere else, most of such movements springing from more or less self-interested motives, It may be possible to effect a little improvement here and there but never in a way commensurate with the expense, and you are dead certain to get into greater trouble at some other point.

If this thing is to be tackled in a serious way with the expectation of arriving at anything worth while it must be by taking the city and surroundings as a complete entity, studying its whole fabrique, and working out a general scheme of development from the bottom up. And if you asked me "what is the bottom?" I would say at once it is the Railroad Transportation Problem.

Railway Problem Fundamental.

The railways are the one thing you can least juggle with, as some of our friends from Toronto may be able to tell us. And yet it may be possible to eliminate a certain amount of that needless duplication of rival surface lines and terminals which, at present, have such perilous and paralyzing effects. We can only do this, however, with the help and co-operation of the railway companies themselves, and fortunately for us, the day is past when the railways seemed to be run on the principle of "Ourselves alone and the People be Damned." The managements of to-day are intelligent and alive to the fact that what is in the best interest of the public is bound in the end to be to the advantage of the railways.

The railway transportation system and the street transportation system must be made to link up and dovetail in together so that each will be the useful and helpful adjunct of the other, instead of being, as now, often in serious and open conflict.

We must bear in mind that it is necessary not only to have main thoroughfares of ample capacity and reasonable grades but that it is necessary to have a street transportation or main arterial system.

Zoning for Industries.

Our factories and industrial establishments must not be strewn promiscuously all over the place, but arranged and located in an orderly and intelligent system.

Similarly also our shopping and business premises should be confined to certain streets and localities in some sort of system that will be most advantageous to themselves and least detrimental to others.

And in particular our dwellings and residences should be kept free of invasion from factories and business concerns, so as to keep down the rents and taxes and at the same time preserve that wholesome, sweet, clean and quiet reserve that is in keeping with the idea of the home.

We need more parks and recreation grounds and especially a more equitable distribution of these in the localities where they are most needed, in fact a Park System, linked up by creditable tree shaded driveways or boulevards and not as at present to be approached only through mean squalid sunbaked streets.

City Planning is Everywhere.

No doubt it will be said that while all this may sound very well in theory, it is quite another matter to work it out in practice. I quite agree with that, and I would like to say that our success will depend very much on how we go about it, if we ever attempt anything of the kind. Other great cities are trying it and effecting wonderful improvements with beneficent results. Indeed Montreal can only come in now at the tail end of the procession, for there is not a city of anything like its size and importance on the American continent that has not some scheme of development.

What is wanted is a general comprehensive plan as a clear objective towards which we can gradually work. The carrying out of the plans will not be the work of a day or a year or even five or ten years; perhaps few of us here would ever live to see its consummation. But we need to make a start in the right direction and along proper lines and not be, as we are now, a ship at sea without a chart or compass and without even a man on the lookout, drifting, drifting,—"We don't know where we're going but we're on the way."

Private v. Public Rights.

Another objection likely to be raised is that we are starting in to interfere with indvidual interests and the rights of private property, and my answer is, it is about time we did, for they have been interfering with and overriding us long enough. If there is one thing more than another that has brought us into this mess it is the assertion and exercise of individual privilege over public interest and the common good, the only remaining thing left to the public being the privilege of paying for it all, with little or no voice in the matter. But town planning is in the interest of all and ultimately for the best interest of every single individual.

Pains of Hell Forever?

Again, it will be said, "It is too late, we have gone too far, at least as regards the built up portion of the city." That is to say that Montreal is in the position of the small boy with his catechism lesson. He had got past "redemption" and was beginning to "endure the pains of hell forever." Well, I am not one of those who believe that; and in any case, how is it we are so apathetic regarding the unbuilt portion of the city? We recognize that things are bad in the centre, and we are doing precisely the same thing on the outside, only we are doing it worse than has ever been done before, and we are doing it over a much greater area. For if we look out there among the stubble, and carefully examine the surveyors' stakes we shall find a bountiful crop of expropriations for street widenings, extensions, and adjustments growing up, under the burden of which unless corrected in time the city of Montreal will go staggering for generations.

Making Slums.

We talk ,too, about hygienic measures for the prevention of disease and the uprooting of slum conditions while we are making them with the one hand faster than we can unmake them with the other. By the way I was cautioned above everything not to say that Montreal had such a thing as 'slums', and I am not going to say that it has, but I will say that out there in what is now nothing but pretty green fields you can find slumdom in embryo, lots of disjointed, broken backed, dead end streets, which, cut off from the general circulatory movement, must in time become the refuge of the foreigner, the nestling and breeding places of dirt and disease, and the hotbed of the epidemic.

Economy of Planning.

But perhaps the last and seemingly insuperable objection is certain to be raised, it is this: "The city of Montreal has no money for town planning, there are many more important and pressing things to be attended to before that, so there's an end to it." I confess that somewhat floors me, but I am tempted to ask, as many another has done before me, why a prosperous and wealthy city like Montreal has no money. I know of course there have been numberless allegations about graft, mismanagement, and so forth. Now, I don't know anything about that and am not going to say anything about it, but this I do know and will make the statement without equivocation, that the main reason why the city of Montreal has a deficit to-day is because all the city governments we have ever had have been too busy working on the surface, tackling results, and have never been able to get down to First Causes. Even the best intentioned of them have been valiantly trying to stop the waste by holding their hands over the burst pipe without stopping the flow of water at its source. And I will further say that if the city of Montreal can't afford to get a systematic plan of development prepared, it is mainly because hitherto it has not had such a plan. And until it gets one, and a good and well considered one at that, the city will keep on leading the hand-to-mouth existence it has been doing, and that condition will steadily continue to get worse instead of better, no matter what we do.

Planning for Beauty.

Before closing I would like to say a word or two regarding the embellishment of Montreal, about which a good deal has lately been spoken. Candidly, I have no liking for the word, it savors in my mind entirely too much of artificiality, and in any case is beginning at the wrong end. If we can plan wisely and well on useful, economical, orderly and symmetrical lines, the city will naturally embellish itself.

But what worries me is that we have already been going in for that sort of thing, laying out parks and squares in the conventional Union Jack pattern and

planting rows of trees spaced with dull and deadly regularity, on isolated patches of ground that are as bare and bald as a pole-cat, while our eyes have been blind to the real beauty spots we already possess, with magnificent outlooks over the river, and with noble majestic trees, the growth of a century. On the trunks of some of them you will see big notice boards nailed, with the inscription "Fine Factory Sites for Sale". Now if we were careful to conserve some of these before they are racked and ruined, we should be doing more for the embellishment of the city than we could do in fifty years of artificial work.

Our Friends the Trees.

In passing, let me put in a plea for "Our friends, the Trees." It is not so many years since Montreal used to be called the "Forest City," but I don't think anybody would care to call it that to-day. The ravages of insects, the natural process of decay, the clumsy butchery of the electric lineman, and the curiously mistaken notion that trees have no place in a business section, have all got in their deadly work, and the city is fast becoming bare. Now if we have any notion of going in for the "City Beautiful," and I would like to add the "City Sensible," we can't do better than emulate the example of other cities who are spending a lot of money to save the trees they have, and plant as many new ones as they can.

Le Paris de l'Amérique.

In conclusion would it not be well if we could hold up before our eyes some sort of Ideal towards the consummation of which we could steadily strive to attain. I believe there is a certain big city at the head of the lakes which has already appropriated one, it is to be called the Paris of the American continent. From one of the dingiest and worst planned cities it has made great strides in recent years, and by voluntarily taxing itself for the carrying out of wonderful improvements under its famous plan of development, it has been doing its utmost to deserve that appellation. In this sort of thing, however, it is not so much a question of "Who saw it first ?" as it is of who can make good its claim to the title. And surely the second French city in the world to-day is not willing to stand idly by with folded arms while the guerdon goes past it. If we can only make up our minds to begin, we have within us all the elements of success. With the fine artistic sense of the French as already exemplified in the works of Hébert, Laliberté, Suzor-Cote and many others, together with the inimitable instinct of that race in seizing hold of the joy of living, and getting the most and the best out of life; and the energy, enterprise and sterling business qualities of the English speaking nationalities—with these blending and operating in unison what is there to stand in our way ?

This then I commend to you as the goal we should strive for, and which we may ultimately reach:—"Montréal le Paris de l'Amérique."

TRANSPORTATION AND THE DEVELOPMENT OF MODERN CITIES

BY PAUL SEUROT, M.E.I.C.
Chief Engineer, Montreal Tramways Commission.

The Transportation Problem in New Cities.

The solution of the transportation problem is especially difficult in the cities still at the period of evolution, cities in process of transformation and in which the population has not reached the saturation mark.

London and Paris, so essentially modern, are, however, very old cities which long ago reached their maximum growth and can only expand now by the annexation of excentric districts or of suburbs. The transportation problem consists, for those cities, in creating new extension lines to connect the central part of the city to these outlying suburbs in the shortest time. The changes to be made in the urban transportation of these cities will have in view mainly the improvements to be made in the rolling stock, the means to be adopted to accelerate the service, the curtailment of operating expenses practicable with a good service and the possible reduction of fares.

In such cities, the transformations are slow and have but little influence on traffic movements. Custom has assigned certain districts, certain streets to special classes of business and the migration of certain stores or shops towards new quarters is progressive and affects only a small number of customers whose movements in one direction or another is hardly appreciable in so far as transportation is concerned.

In Canada.

In North America, in Canada, particularly, the conditions are different. The largecities, there, are still in the period of evolution and of transformation. Some of these cities, until quite recently, were mere villages or only an agglomration of wooden shacks hastily put together alongside a railway track, near a mine or a lumber mill.

Montreal itself which, with its surrounding insular territory, had but 330,000 inhabitants in 1900, reached 872,000 last year; and taking in consideration the large territories still unoccupied on the island of Montreal it is possible to foresee what will be the Canadian metropolis in twenty or thirty years.

Special Conditions in the Growth of American Cities

The rapid growth of American cities has taken place under special conditions and might be compared to the forced growth, in conservatories, of plants, which, normally, would have reached their full development after a much longer time. The construction of railways has been the principal cause of this rapid evolution. In the over-populated countries of Europe, the railways had to follow well determined paths to connect cities permanent-

ly settled, which they could only enter at specified points and under certain conditions and restrictions; this explains the elaborate approaches, bridges, viaducts or tunnels which had to be built in order that the railway construction should conform to the state and municipal regulations.

No Planning.

In America, the conditions were entirely different. A few industrial centres, usually at the confluence of navigable rivers, scattered over the continent, separated by large and usually unoccupied territories, centres which it was necessary to connect with one another. That is why, at the beginning, railways were laid along the path of least resistance, with cheapness and rapidity of execution in view, rather than durability and permanency. Along these railways, which were to become the great arteries of the American continent, were successively erected the warehouse, the general store, the hotel, a few residences, the factory, the church and in a short while towns came to life and expanded with a rapidity at which Europe marvelled.

This is why, in so many American towns, rights-of-way in the middle of the streets can be seen, level crossings, sidings and shunting tracks across the main avenues or even along their axis. These have become so many obstructions to local traffic and to the development of some districts, with the accompaniment of noise, dust and smoke.

Railway Rapproachement.

This has brought about within the last twenty-five years: the reconstruction of the principal railways in the large cities of the United States, the elimination of freight tracks from the surface of the streets, the grouping of the main approach lines, he elimination of grade crossings by depressing or elevating the tracks, the not infrequent amalgamation of the lines of different companies entering a city along the same right-of-way and having the same terminal, the "Union Station", the practical usefulness of which to the interested companies is self evident, and which puts at the disposal of the travelling public all the latest modern improvements, comforts and conveniences.

Interurban Transportation.

In regard to interurban transportation, the old and permanently established towns have only to provide the lines that are necessary to serve the large centres of population and the principal streets. The levels are permanently established according to standard data, the pavements the sewers and all municipal underground utilities have been installed and the tramways and the subways have only to conform to the regulations and to the conditions. The only things to determine are the number of lines to operate, the car service and headway for each hour of the day, the transfer points, the subdivision in zones, the economical haul, the time and the place when, and where, the subway or elevated structure becomes more advantageous than the autobus or the tramway. The loading and congestion points are known and means to adequate and rapid handling of the crowds at certain hours can be devised in advance. In these cities, the population of which has already reached the point of saturation, the growth is constant and is not generally over 3%. The suburbs alone, which may still be in the period of evolution, are the unknown factors of the problem. These suburbs will have to be served by extensions or penetration lines which will effectively relieve the steam railways suburban traffic which is always an impediment to main line operation.

Cities in Evolution.

In cities still in the evolutionary or constructive period, the problem is more difficult to solve. The development of the means of transportation and the development of the city itself are not always simultaneous. In many cases, particularly during the periods, more or less hysterical, of real estate booms and wholesale lot subdivisions, street car lines, and even elevated lines or subways, are built long before the newly opened territories are sufficiently developed to insure a precarious return upon the invested capital. In their estimates, the engineers and the financiers, as well, should take into consideration the probable increase in population to have a fair idea of the future density of traffic.

According to the theory of George P. Watkins, one of the statisticians of the Public Service Commission of the State of New York, based on former studies by Wellington, in his book on Railway Locaton, and by Mattersdorff in Berlin, it appears that, generally, traffic, which at first increases directly in proportion to the population, increases more rapidly, and as the square of the population, as soon as transit improves in regard to speed, comfort, number of cars, even if these improvements require the opening of new lines or the construction of new means of transportation such as subways.

Good Transportation Affects the Growth of Cities.

It might be well here to see what bearing well planned new means of transportation may have on the development of communities. The Borough of the Bronx, for instance, which became, politically, a borough of the city of New York in 1900, remained, until 1905, geographically separated from New York by the Harlem River and about 11 miles distant from the down town district which could be reached only after travelling for nearly an hour and a half.

In 1902, when the construction of the subway was started, the population of the Bronx, spread over an erea of 40 square miles, was 230,000 and the real estate value recorded in the Tax Department was $153,500,568. In 1905, when the east branch of the subway was opened, giving rapid and continuous transportation from the Bronx to South

Ferry, the end of the line at that time, the population was 275,000 and the value of the real estate $274,859,593. This shows that in three years, previous to the opening, but speculating on the benefits to be derived therefrom, the population had increased 20% and the real estate value 78%.

In 1911, six years after the opening of the subway, i.e. from 1905 to 1911, the population had increased 76% and the real estate value 120%, the former being 483,224 and the latter $605,222,933. Compared to 1902 the population had increased 110% and the real estate value 294%.

Traffic Stagnation in Montreal.

In 1912 the population on the island of Montreal was 600,000; in 1921 it was 872,000. In 1912 there were, on the Montreal tramways 175 rides per annum et capita; according to Watkins' theory there should have been 369 revenue passengers per annum and per capita; there were only 218 during the last fiscal year. The same discrepancy appears if we take the transfers into account; the total number of rides per annum et capita was 230 in 1912 and 297 in 1920-1921, whilst it should have been 485 according to the formula established by Watkins, Wellington and Mattersdorff.

We know, however, that until certain improvements have been brought in any transportation system the traffic is directly proportional to the population; therefore the rides per year and capita which were 175 in 1912 should have been 254 in 1921. They were only 218. The difference, however, is not so great if we consider that the last seven years were abnormal economically as well as in regards to immigration and population.

It would not be right, either, to conclude from the above data that if traffic has not increased more rapidly than in proportion to the growth of population it is because the service was not sufficiently improved to cultivate in the public what has been called the "riding habit."

Results of Bad Planning.

The cause of this traffic stagnation is not due altogether to the economic crisis which has weighed on the world for the past seven years nor solely to the lack of employment and to the rising cost of living, of materials and of labour; the main cause is inherent to local conditions which obtain in large modern cities in America, still in the constructive period of evolution and transformation and where the utter lack of well planned policy in regard to city development has created unbalanced systems of transportation where we see overcongested lines pay for the maintenance of wholly unproductive ones. These conditions are due to the uneven development of the different sections of these cities, creating in some of them some sort of local hypertrophies generally following the energetic, if not always wise, methods employed by some real estate companies too anxious to dispose of their subdivided wilderness. To this may be added the hasty construction of manufactures and shops in poorly chosen localities which permanently close their doors after a short while or move to better quarters.

To these difficulties, found in the way of satisfactory transportation, must be added the rapid construction of large office buildings within a comparatively small area. In Montreal, for instance, were built, almost simultaneously, Transportation Building, Dominion Express Building, Royal Trust Building, Duluth Building, Sauvegarde, Versailles Building, Shaughnessy Building and the Bank of Toronto Building; and now we see the office business section of the city expand and its centre of gravity move away from the intersection of St James and St. Francis Xavier streets; large office buildings are now being erected on Beaver Hall Hill and on Phillips Square; St. Catherine Street is changing from day to day; large banks are now opening there monumental branch offices; new stores are opened or the old ones enlarged; at the main transfer points are the Dandurand Building, Almy, and the Drummond Building; to-morrow it will be the Mount Royal Hotel, not to mention the almost continuous line of theatres which at certain hours concentrate, along a distance of barely a mile, crowds that must be handled in a comparatively short time.

Congested Travelling.

The rapid transportation of the many employees working in these stores and offices who, from 8 to 9 a.m. and from 5 to 6 p.m. go in both directions like a flood and ebb tide, is a difficult problem to solve and one that taxes the operation of the transportation system to the utmost, owing to its very disproportion with the normal, or base day, service. In Montreal, for instance, at the peak load, during the 6 o'clock rush period, there are on the whole system two and a half times more cars in service than from 10 a.m. to 4 p.m. During this peak load service, the main streets, such as St James, St. Catherine, Bleury and St. Denis are so crowded that it is practically impossible, particularly near the intersections, to add any more cars.. On St. James, between Place d'Armes and McGill street, there is a continuous line of cars, and on St. Denis, for instance, the average headway between cars is 40 seconds and 32% of cars, passing under that headway, have trailers in tow.

The first and immediate remedy to these conditions, with a view to relieving the congestion and in order to accelerate the car movements, would be to cut down the number of stops or, at least, to stagger them on each side of the streets. This, however, requires, first of all, the good-will and the co-operation of the public.

The Solution.

What will be the solution a few years hence? Perhaps the construction of subways under these

main arteries making possible an underground express service run in conjunction with, and relieving the local surface service or, possibly, the construction of new surface lines on streets parallel to those on which tramways are now being operated and which could give a mixed service with stops staggered with the present ones.

Subways ?

It seems, however, that the better plan would be to follow boldly the American solution and build underground railways which, in so far as Montreal is concerned, should preferably be operated jointly with the existing street railway and under the same management. According to American experience, it seems that the metropolitan district proper is included within a 30 minute-zone; outside this zone, the service becomes suburban and, as such, may be subject to the regulations obtained in the operation of suburban service on main line steam railways, chiefly in regard to time table and headway. However, the contract entered into by the city of Montreal and the Montreal Tramways Company, and under the terms of which the present system is operated, has not accepted this delimitation between urban and suburban travel: the contract, sanctioned by an act of the Legislature, has included in the metropolitan district certain sections of the island separated by great distances so that, for instance, it is possible to go from Cartierville to the limits of Montreal East, nearly twenty miles, for one single fare, on a trip lasting almost two hours. This feature will perhaps foster the development of vast territories, still unoccupied, in the Metropolitan District, but the means of transportation will have to be organized on a new basis, because it will become impossible to feed from a central point, already too congested, far distant territories which will themselves be, at that time, active and thickly populated centres.

In view of the changes taking place almost continuously it is necessary to follow closely the increase of population with a view of placing adequate means of transportation at its disposal.

Civic Survey Maps.

The census of the population bordering along the main arteries must be taken and details given for each office building, department store, factory or theatre. In the questionnaires sent to the managers of large stores or manufactures, information is asked regarding the routes followed by the employees in going to and from their work. Such data help in planning what service is to be given to the travelling public at certain hours of the day. The returns so obtained can be shown on the plan of the city by plotting, isometrically, or in any other conventional manner, the density of population for each street and even for each block.

With due allowance for the annual percentage of increase in population and the possibility of seeing St. James street and Notre Dame street lined with ten-story office buildings between McGill street and the Champ-de-Mars, one may imagine what service will be required to handle the crowds of employees leaving this busy bee-hive between 5 and 6 o'clock; and this increase, with attending congestion, will not only be local but will spread to, and affect, the other large arteries of the metropolis.

Need of Zoning.

In some American cities, with a view to obviate this overcrowding, it has been recommended that stores and offices, on different blocks, should close at different times. This solution, however, is not practical. Even before the congestion has reached the point of saturation, it seems that the only possible solution will be the construction of subways or of new surface lines looping the principal centres of congestion. At that time, the routing of the main lines should be so changed as rapidly to handle the crowds from the most heavily loaded district towards the limits of districts in which the density of population is constantly decreasing. This is equivalent to zoning; the division of Montreal in zones, with the present rolling stock, could be done only in so far as the rapidity of transportation is concerned, a greater number of cars reaching the limits of the first zone being able, by means of loops, to come back to the starting point. The division in zones, in so far as it might affect the fares, by making the tariff proportional to the haul, would necessitate an entirely new equipment or the remodelling of the present rolling stock. This zoning, however, is impossible according to the contract which specifically determines the limits of and uniform tariff territory.

Planning For New Lines.

As to new lines, called extensions in the contract, they should be considered, in regard to population, as are the central districts of the city. A careful census giving the number and the class of houses, tenements and residences, with the number of people residing in the district under consideration, should be prepared, affected by a coefficient corresponding to the probable growth of the district. The construction of the new line or extension should begin when the development of the district had reached a well determined point.

In this respect, there should be the greatest possible cooperation between the city and the Transit Company; this co-operation would then prevent the city from compelling the operating company to immediately build lines which will likely be unproductive and remain a burden on the rest of the system for many years. This cooperation would be such as to avoid, what is done repeatedly: ordering the construction of new extensions in the wilderness, along non-existent streets which appear only on city maps and through land which has

not yet been expropriated. This method has, furthermore, the fault of carrying with it unnecessary expenses since the tracks have to be reconstructed when the streets are at last opened and the sewers, gas and other municipal improvements installed. It has also the fault of laying a new line on a right-of-way which cannot be reached as long as the cross streets have not been opened up. On a new line, recently built under such conditions, passengers wishing to get on or from the cars can only do so by jumping over fences and trespassing on private property. It seems that a well thought out plan should foresee the simultaneous construction of the streets, of the subterranean municipal improvements and of the street car tracks.

In regard to the Island of Montreal, the construction of new lines serving municipalities outside of the territory already specified in the contract seems difficult to undertake. According to the present contract entered into by the city and by the Montreal Tramways Company, every municipality served by the company should be able to support its own share of the cost of operation of the transportation lines necessary to handle its quota of traffic, without being a load on the city of Montreal or on the other municipalities served by the same system. This clause of the contract is perfectly fair and reasonable. It prevents, as a consequence, the construction of new extensions into the several municipalities surrounding the Metropolis, on the Island of Montreal, because such lines could only be operated if the interested municipalities were able or willing to guarantee the fixed charges and operating expenses which could be met only by prohibitive fares. It seems that in such cases the construction of the proposed extensions must be postponed until the time when the population will be large enough to ensure an adequate and sufficient revenue.

In concluding, it is well to insist upon the necessity of co-ordination between the several municipal departments and the transportation system; more particularly in regard to street tramways this co-ordination must have in view the simultaneous changes of grades, renewal of pavement and renewal of tracks in the central sections of the city. In the outlying districts and the suburbs, and after a careful study of the possible normal development of any district, it will be wise to build the new extensions or transportation lines only after all the preliminary planning has been settled, after all the expropriations have been concluded and after all municipal improvements, streets, sewers, water and gas mains and electric conduits have been constructed and installed.

With a view to improve its service and to help in giving to the city in which its lines are laid, the poise, the symmetry, the quiet orderliness, the regularity and harmony that go toward making the distinction of well governed cities, the transportation company should endeavor to do away with anomalies and conditions which may not be abreast of the times. It should replace all unsightly wooden poles by steel or reinforced concrete poles which, with the advantage of durability, easily lend themselves to some sort of decoration; it should try to unify the types of rails, of track construction and of the cars; it should provide shelters and loading platforms for the passengers at the main transfer points and generally should endeavor, with the hearty co-operation of its personnel, to foster among the public the riding habit which alone can ensure the success of any transportation enterprise.

This result ought to be easily obtained in Montreal where the present contract has made partners of the city, that is the public, on the one hand, and of the Transportation Company, on the other.

ZONING PAYS.

BY GEORGE B. FORD

Director of the City Planning Department, Technical Advisory Corporation, New York City.*

Zoning has Come to Stay.

Zoning has come to stay, for it is proving to be good business. The Board of Taxes and Assessment of New York City is, each year, increasing the assessed valuation of thousands of properties as a result of benefits from zoning. Curiously, out of the thousands of protests which the Board of Taxes and Assessment receives each year against increases in assessed valuations, virtually none have been against the increases made on account of zoning benefits. Other cities are already beginning to report the same effects and experience.

Zoning Saves Money.

Zoning saves money. In Newark, New Jersey, the city officials are saving thousands of dollars a year in the extensions of the sewer systems, the water and gas systems and in the grading, paving, grouping and planting of new streets, because the zoning map shows definitely the maximum development of property that will have to be provided for. Consequently, the previous allowances for unknown future requirements can be largely avoided.

Real Estate Men Approve.

Everywhere that zoning ordinances are in effect the real estate men are enthusiastic about them and use zoning as one of their best taking points in selling property.. New-comers to a community who contemplate property purchases frequently ask the realtor if the community is zoned.

Zoning is logical and inevitable. It is good business. Within a few years zoning ordinances will be even commoner than building or sanitary codes.

*Mr. E. P. Goodrich, of the American Society of Civil Engineers, who was to have spoken on "Zoning in New York and other Cities", was unable to be present but sent the following valuable paper by Mr. George B. Ford, whose town planning work in the United States and France will be known to many readers of The Journal.

Many States have Zoning Law.

The States have foreseen this and one after another, starting with New York State, have passed Zoning Enabling Acts which delegate to cities and latterly to towns and villages the right to invoke the Police Power of the State to control the use and development of private property, in the best interest of the community as a whole.

Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota and Missouri have all passed Zoning Enabling Acts. There are at least half a dozen more states, especially in the West, that have home rule provisions which make State Enabling Acts for Zoning unnecessary.

Zoning Stabilizes Property Values.

These State Enabling Acts are constantly improving as a result of experience in the operation of existing ordinances. They lay much more insistence on the necessity of stabilizing property values and wherever possible, enhancing them. They provide for the creation of setback building lines; the creation of Boards of Appeals to interpret the ordinance and, starting with the Act passed by the State of New York in 1920, they provide much more effective machinery for the enforcement of zoning ordinances.

There are already over thirty zoning ordinances in effect. There are at least 100 more in process and there are several hundred more cities and towns that have zoning under serious consideration.

The Force of Example.

In Northern New Jersey, where zoning is particularly active, on account of the Town, Village and Borough Enabling Act passed in the spring of 1920, we find some twenty-five or thirty communities zoned, or in the process of zoning. Curiously, several towns have been forced into it against their will by the fact that all of the surrounding communities were zoned or zoning and as the central town found it was getting their leavings it had to zone to protect itself.

In New York State, zoning ordinances are in effect in Yonkers, White Plains, Gloversville, Rye, Rochester, Niagara Falls and New York City, and a number of other cities and towns are starting. The Village Zoning Enabling Act which was passed this spring greatly extends the field of application of Zoning.

The Courts Favor Zoning.

The courts have been unanimously favorable to zoning and the forty or more decisions in legal cases arising from the New York Zoning Ordinance have strongly upheld the principle of zoning and the New York Ordinance in particular. The decision of the Court of Appeals of New York State handed down last July on the Lincoln Trust case was remarkably favorable to zoning, when done logically and reasonably.

The three recent decisions in New Jersey have been distinctly against piecemeal or discriminatory zoning but entirely favorable to comprehensive zoning done in a scientific manner.

The Right of Cities to Beauty.

When one studies the trend of court decisions one finds that they are becoming constantly more liberal and whereas, ten years ago the application of the Police Power was limited to matters of involving health, safety or morals, to-day the courts distinctly say that it is applicable also to cases involving the general welfare, public convenience and public good and some courts, notably the Supreme Court of Massachusetts, have even gone so far as to state that aesthetics may be a supplementary reason for the use of the Police Power in zoning.

Experientia Docet.

That zoning has come to stay is shown by studying the amendments that have been made to existing zoning ordinances. There have been about 120 applications for amendments in New York City of which about one-half have been granted and half denied. In St. Louis there have been twenty-five applications for amendments, of which ten have been approved. Newark has had the same number of applications, of which eleven have been approved. In Yonkers one amendment has been approved. In White Plains none.

During the first two or three years after the enactment of the New York Zoning Ordinance the majority of the amendments tended to loosen up the ordinance by changing a business block to an industrial block or a residential to a business block. But within the last year and a half the pendulum has swung the other way and now about three-fifths of the applications for amending the New York Ordinances are actually to stiffen up the restrictions. Various blocks, zoned as business districts, have petitioned almost unanimously that the block be changed into a resident zone. They felt that it was good policy to pull their block back to a residential use despite the serious invasion of business.

Boards of Appeal.

Almost every zoning ordinance has created a Board of Appeals and these Boards have been distinctly helpful. For example, in New York City in the five years that the zoning ordinances have been in effect, there have been between thirty and forty thousand applications for building permits. In about 1200 cases, appeals have been made from the decisions of the Building Superintendents to the Board of Appeals. About one-half the appeals have been granted and about half denied. But out of these 1200 cases only about thirty have been re-appealed to the courts, and the courts have reversed the decisions of the Board of Appeals in only four or five unimportant cases. It is obvious what a vast benefit the Board of Appeals have been in getting quick action and keeping the courts from getting clogged up with technical matters.

The Value of Zoning Maps.

One of the most striking things that recent zoning has shown is that where an ordinance and map is prepared scientifically with all of the necessary supporting data and evidence, the result is so convincing that it is its own best argument. In case after case I have seen a logically worked out zoning map presented to a zoning commission and to a city governing body where the supporting data brought out so convincingly the logical location and boundaries of the various districts that those proposed were adopted with remarkably little discussion. Once people can see with their own eyes the logic and inevitableness of a properly prepared zoning ordinance and map they are bound to become advocates of it.

Among the new features of zoning is the reduction of the former three or four separate zoning maps into one map on which use, height, yards and setbacks and even fire limits are shown on one limited set of coterminous zones. This means a vast saving in time and trouble for all of those who have to do with the application and enforcement of the zoning ordinance.

Home Districts Preserved.

More and more drastically, cities and towns are controlling the heights of their buildings and the sizes of their yards and courts. Some residential suburbs are ruling out industry entirely. The minimum sizes of all yards and courts are becoming considerably larger. In some towns no buildings over three stories high are allowed and apartment houses must be detached, with wide side yards. Strictly one-family house districts are being created everywhere and in some cases the number of families per acre is being limited. Buildings are being made to set back even on business streets. Discriminatory features are being avoided and the ordinances are telling in black and white under just what conditions, as a protection to the surrounding districts, garages and other such buildings can be located in the business districts. The private garage and group garage evil is being effectively controlled and, in general, zoning ordinances are being made vastly simpler and easier to be understood and enforced.

Correlation of Zoning and Building Codes.

One of the most interesting forward steps is the correlation of zoning ordinances with building codes, sanitary codes, fire prevention, garage and housing ordinances with a view to avoiding overlapping. All matters that have to do with the use, height, area, setback, location on the lot or arrangement of buildings is being taken out of these other codes or ordinances and put into the zoning ordinance with a view to simplifying administration. However, this brings up a very serious question which has been troubling us more and more during the many years that we have had to do with the administration and enforcement of zoning and other ordinances. Every city is constantly passing new ordinances that have to do with the control of housing or sanitary codes, fire limits, garage or the use of private property, such as building codes, theatre ordinances, billboard or sign ordinances, setback ordinances, the control of sub-divisions or zoning. All of these are concerned with the development of private property. In most cities their administration is divided among several different bureaus, each with its own separate inspectors, some of whom are men with technical training, others not. In the various cities where we have been asked to study the situation, we have found that nearly half of the administrative time and energy at present expended as a result of these ordinances is wasted through lack of co-ordination.

Zoning Tends to Economy of Administration.

Therefore, we strongly recommend that in those cities that are conscious of this waste a survey should be made of all of these departments or bureaus that have to do with the control of the use of private property with a view to seeing how the ordinances and laws may be codified and the enforcing services can be combined into one bureau, under one head, with one set of inspectors who would pass upon the original plans as presented and who would follow up currently the use of private property. The State is making a somewhat similar survey with a view to effecting economies in the State administration. The Federal Government is about to do the same thing with a view to simplyfying the control of governmental machinery The New York State Public Service Commission is doing it and in every case where done scientifically such a survey or diagnosis pays for itself many times over.

New Jersey has gone far ahead of New York State in zoning. Strangely few municipalities in New York State, comparatively, are now engaged in zoning. The governing officials in many places seem to know little or nothing about it We find that the realtors or occasionally a Chamber of Commerce are the only ones in many places who are active in propaganda work.

Zoning Give Great Chance for Enlightened Mayors.

In zoning lies a great opportunity for enterprising mayors to accomplish big results in their administration. Every administration that has done it looks back to it as one, if not the crowning feature of its town term. The expense is negligible. It pays for itself many times over in dollars and cents. Now is the time to get under way, before the inevitable building boom begins.

Survey of Departments.

Therefore, we strongly recommend that in those cities that are conscious of this waste a survey should be made of all of those departments or bureaus that have to do with the control of the use of private property with a view to seeing how the

ordinances and laws may be codified and the enforcing services can be combined into one bureau, under one head, with one set of inspectors.

Zoning is effective only if it is reasonably stable. If it has to be done over again, people lose confidence in zoning regulations and its purpose is defeated. It is only by bringing to bear the broadest possible experience on all of the various problems that enter into the development of the city, that the city fathers can be assured that their zoning plans are going to stand the test of time. Any one can zone if he is prepared to spend the years of study needed to find out just what has and what has not worked out in zoning practice elsewhere. There is no royal road to it. Long experience alone counts.

Zoning Initiative.

Zoning is not self-starting. Neither is the improvement of other laws or ordinances affecting property which can well be consolidated with it. City administrations can rarely act ahead of public opinion. They need the impulsion and the backing of the private organizations most affected. The initiative must come from a Real Estate Board, or possibly from an architect's society, a Chamber of Commerce or a civic improvement association or better still from the combined effort of all.

Zoning Makes for Glorious Cities.

If studied conscientiously and thoroughly, there is nothing that a city government can do to-day that will redound more to its glory in the future generations and contribute more to the welfare and happiness of the community than "Zoning," and the cost is merely that of the making of plans; which are paid for, a great many times over, as New York City has found, by the increase in taxable values which the regulations create.

Now is the time to start, for the sooner it can be put into effect the more can be salvaged from the ruin caused by uncontrolled property. A building boom is inevitable and then speculative and harmful building will be widespread. No town is too small to start.

The Town Planning and Development bill of South Australia 1919-1920 has been passed after many months of discussion. The bill establishes a town planning department and a government town planner on a permanent basis with immediate control of all new towns, subdivisions, etc. An advisory board is to be set up comprising local members and professional members and will deal with such matters as are referred to it by the Minister of Town Planning. Certain parts of the original bill dealing with town planning by-laws and schemes have been deferred for future consideration.

South Australia is the first state in Australia to pass a town planning act. This work has been accomplished after a great deal of opposition from persons interested in the continuance of present conditions.

CHARACTER IN DESIGN OF PARKS

BY FRED G. TODD

Landscape Architect, Montreal.

Design.

Definite outstanding character is as pleasing in a park as in the human individual, in the magnificent public building or the private house. We may not understand just why it is pleasing but we know that we find one park interesting and delightful and another monotonous.

The individual characteristics of a park may be ruggedly picturesque, pastoral, or gardenesque or a combination of all these and they may be obtained entirely by artificial means, as is the case with many of the beautiful parks of Paris and other parts of Europe, or they may be largely natural as are the most of our beautiful parks in this country.

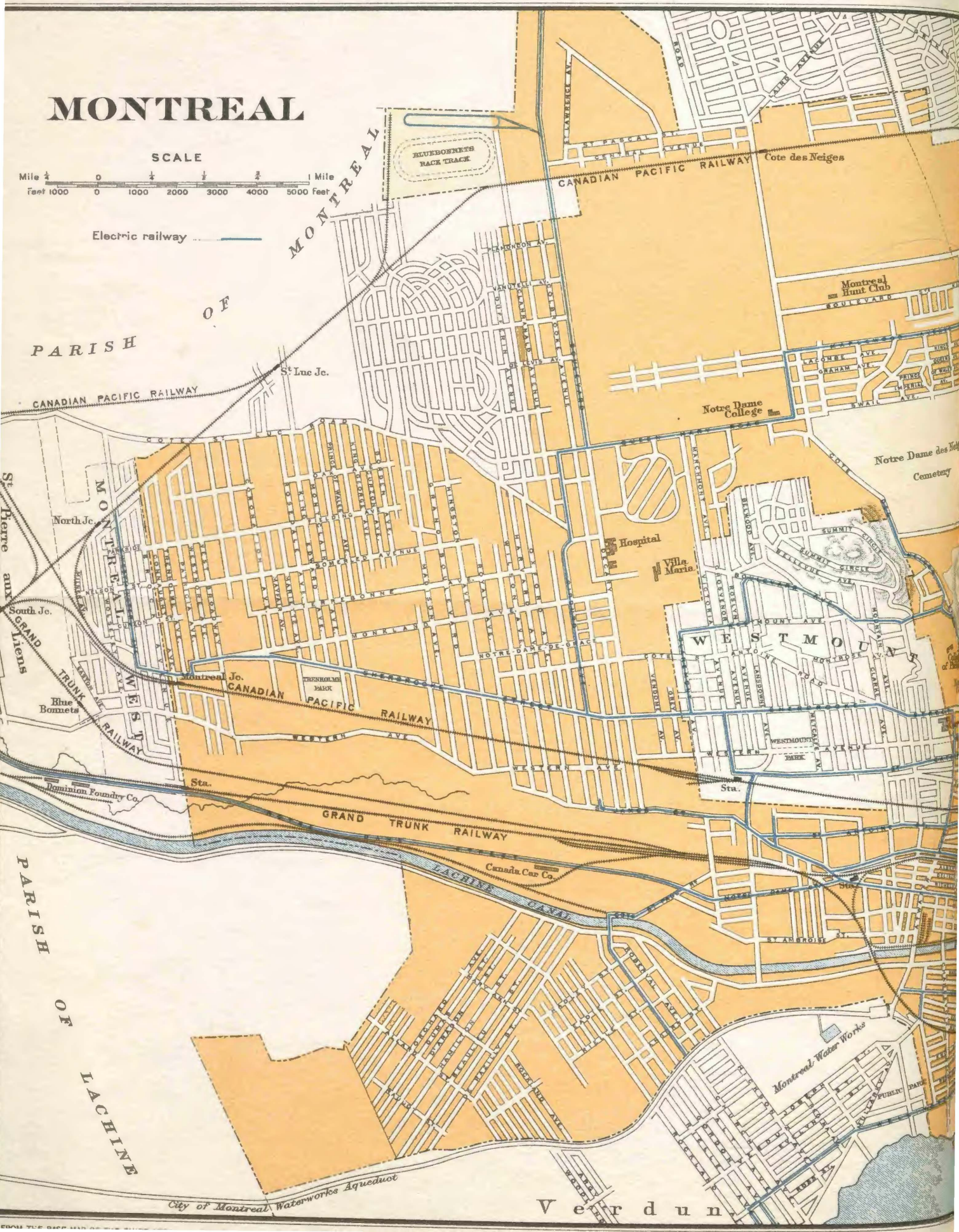
To prepare a proper design for a large park one must examine and study every natural feature, he must live with the problem until he not only absorbs all its natural beauties, but until he has made himself familiar with all the requirements and demands which will be made on the park presently and for some time in the future, for upon our skill in the development and utilization of these natural features and their successful co-ordination with the practical requirements of the public who are to use the park, depends the question of whether our design is good or bad.

To place this more correctly before you I would like to mention briefly three parks having very different natural characters.

Assiniboine Park, Winnipeg.

The problem here was to make 300 acres of level, rather uninteresting land along the Assiniboine River beautiful, interesting and useful to the public. No outstanding natural features were present except the vast openness of the place, and a fairly interesting well wooded river bank. It was felt that to try and develop the entire park with trees and shrubs was hopeless, and it would be equally monotonous. Therefore the main entrance to the park was decided upon and immediately inside about ten acres was laid out in a very formal manner. Two straight parallel drives were laid out the whole length of the formal garden with a panel of turf between, in the centre of which was a long pool of water, to give reflection and increase the beauty of the vista from the entrance. These formal drives come together and terminate in an elevated terrace at the end of this formal section of the park, and from this terrace curving drives depart from both sides. The visitor to the park thus passes through the entrance and is immediately confronted by a striking vista down the large panel to the terrace; he then passes into the formal section in which the gardener's art is utilized to the utmost to produce masses of brilliant flowers and foliage, and his attention is confined to this area by formal lines of

MONTREAL
#7


MONTREAL
SCALE
Mile ¼ 0 ¼ ½ ¾ 1 Mile
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Electric railway
PARISH OF MONTREAL
PARISH OF LACHINE
CANADIAN PACIFIC RAILWAY
Cote des Neiges
Bluebonnets Race Track
Montreal Hunt Club
Notre Dame College
St. Luc Jc.
North Jc.
South Jc.
St. Pierre aux Liens
Montreal Jc.
Hospital
Villa Maria
Cemetery
WESTMOUNT
Trenholme Park
Westmount Park
Sta.
Dominion Foundry Co.
GRAND TRUNK RAILWAY
Canada Car Co.
LACHINE CANAL
Montreal Water Works
City of Montreal Waterworks Aqueduct
Verdun


Bresley
Outremont Yard
Mile End
UTREMONT
Angus Shops
CANADIAN PACIFIC RAILWAY
Mount Royal Cemetery
MOUNT ROYAL PARK
Victoria Hospital
Hotel Dieu
LAFONTAINE PARK
Hochelaga Yard
McGill Univ.
VIGER SQ.
City Hall
Elevator
Ferry
St Mary Current
Longueuil Ferry
Ile Ronde
St Helen Island
Public Park
Montreal South
PROPOSED BRIDGE
Ile Verte
CANAL
ST PATRICK SQ.
Windmill Point Basin
BICKERDYKE PIER
PROTECTION PIER
Point St Charles Yard
Alexandra Hospital
VICTORIA BRIDGE
Maffat Is.
RIVER ST. LAWRENCE

trees. Passing through this formal display he arrives at the slightly elevated terrace where in distinct contrast he sees spread out before him a hundred acres of open land, a veritable prairie, bordered by irregular masses of trees through which glimpses of the curving drives, which wind about the park, may be had. This contrast helps to make the vast open stretches of the park, which is a feature of this part of the country, interesting. Advantage was taken of other natural features along the river, but they are only of ordinary interest.

The National Battlefields Park at Quebec.

This presented quite a different problem but one of rare interest. With a diversity of views unparalleled for beauty, extent and interest, and with a wealth of historical associations, unequalled anywhere on the continent, there was no lack of interesting features to develop. The really great thing about this park, however, which appeals to almost everyone is its connection with the great historical events of our country, and the whole design of the park has been with the idea of preserving these old battlefields, and making them accessible and interesting to the public, which in this case includes the citizens of all countries who have heard of Wolfe and of his wonderful courage and perseverance Unfortunately the war stopped work on a most important portion of the park, that nearest the Citadel, and the old Ross rifle factory stiill injects its ugliness into the beauty of the park, but these things will pass with time, and as the largest and most expensive portion of the park is finished, I hope that in the not very far distant future it may be completed, for it is the one park whch must appeal to everyone in Canada through its associations with the early history of our country.

St. Johns, Newfoundland.

Two years before the war the firm of Bowring Brothers of St. Johns, Newfoundland, made the city a present of a public park to commemorate the 100th anniversary of their firm. Although this is a small park of but 65 acres, its great naturally picturesque beauty led me to select this as the best example of such a park. In its development everything possible was done to make the park readily accessible to the public and in such a manner as to exhibit its attractive, natural features to the best advantage. A great deal of artificial work was however required on the park, the outline of streams changed, artificial falls constructed and a small lake made but all of these artificials creations will blend perfectly with the natural portions of the park when the trees and bushes planted assume their proper proportion.

Montreal.

Montreal does not possess a system of parks connected up with park ways and boulevards such as may be seen in many cities, but what a wonderful heritage has been handed down to us in Mount Royal Park and St. Helens Island to say nothing of Lafontaine Park, Maisonneuve Park and numerous small ones ! Go where you will the world over and you will not find another park such as Mount Royal Park and St. Helens Island, to say nothing of will live to see the Mountain rising almost from the centre of a great city with our magnificent park elevated five hundred feet above the noise, dust and impure air of the city street. Perhaps then we shall appreciate more fully its wonderful value, for it is not appreciated, or made use of to-day as it should be, largely owing to the utter lack of proper transportation facilities.

Mount Royal.

I have no sympathy with those who would keep the tramways or other public service companies from doing their duty to the public by giving cheap and efficient transportation to the top of the mountain and well within the park. Let us by all means regulate them and preserve with the utmost care the glory of our wonderful Mount Royal Park. Let us accentuate by suitable development its rugged picturesqueness, and its marvellous sylvan beauties, but let us above all things make these beauties and the healthy, invigorating mountain top easily accessible to the weaker ones of our city, for a park is only of greatest value if it is available for use to the great majority of the public and to those who need it the most.

Looking Backward on Town Planning.

Two hundred years hence the great housing and town-planning movement, now at its meridian, which has for its objects the planning out with wide roads and open spaces of the land lying round cities and towns and the erection of houses for rich and poor which shall be hygienically constructed and provided with an abundance of unfettered ground space, will be compared in importance and consequence with the Renaissance of the fifteenth and sixteenth centuries. Few who once grasp the principles involved become other than enthusiastic in their advocacy of the movement. They find that the evils of overcrowding in the past have been appalling in their influence upon the health and the mentality of those who have by force of circumstances been compelled to dwell under such conditions, and they very properly regard it as an essential duty to assist in a practical manner in propagating information concerning them so as to bring about a remedy.
—The Sanitary Record and Municipal Engineering.

When I see about me, in the fields of intellectual attainment and culture, in the walks of business and in family life, so many disasters and tragedies long drawn out, of failing health and collapse of nerve, brain, and muscle, I feel that health is the only bulwark upon which everything we prize in intellectual culture and religious perfection can ever be reared. —G. Stanley Hall.

CONDENSED PAPERS

The following papers have been printed in extenso in various technical journals and are given in condensed form.

RAPID TRANSIT IN RELATION TO CITY DEVELOPMENT.

BY F. STUART WILLIAMSON, M.E.I.C.

Mr. Williamson dealt with the problems of transportation in the city of Montreal and adduced much cogent argument and evidence in favour of a rapid underground system of transit which would both relieve the congestion in the heart of the city and make suburban residence more practicable for the workers in the city. He showed that the introduction of the electric car and the motor bus in such cities as London and New York had enormously increased the volume of passenger traffic and by implication, at least, proved the need for a thorough revision in the principles of city planning. By comparative figures he showed that while the people of Montreal used the transit facilities only to the extent of 250 rides per head during the year, cities like London and New York, where underground traffic was installed, travelled to the extent of 400 rides per head. The reasons given for this comparative stagnation of travel in Montreal were the inconveniences of living in the suburbs owing to lack of rapid transportation with the natural consequence of ever increasing congestion of living conditions in the centre of the city. Mr. Williamson's conclusion was that it was impossible to disperse the inhabitants without rapid transit to the outlying districts and that central congestion, both of living conditions and of traffic must become more and more serious. Demands are made upon the Tramways Company for increase in the number of cars, while there is no room for them to operate. Nothing will help to abolish the many evils from which Montreal is suffering so much as a quicker and better means of travel from the centre. Among these evils were enumerated crowded tenements, vice-ridden slums and other unfortunate conditions.

The increase of motor cars and motor trucks has further added to the congestion incident to inadequate planning for the needs of a great city. The only relief possible is to remove part of the traffic and this can only be done by rapid underground transit since overhead railways are civic enormities that should not be considered. People will not live in the suburbs if it takes an hour to go to and from their work.

Mr. Williamson also pressed the argument that rapid underground transit would increase real estate values all along the line of travel. The return to the five cent fare could only be effected by a joint surface and underground transportation since the operating costs of an underground system are less than those of a surface system and, therefore, passengers can be carried longer distances at less cost, the long-haul business goes to the underground and the short-haul to the surface. He believed that in the future street cars would be withdrawn from the busiest streets altogether and motor buses substituted for them. The success of the motor bus in central London and in New York has been fully demonstrated but for more comfortable, less crowded and quicker travel in a great city underground rapid transit was essential. The increased use of the motor car decreases the revenue of the tramways service aand adds enormously to the congestion of traffic. Underground transit would attract the patronage of many who now travel by private motor car because it would be quicker and cheaper. The motor car has complicated the traffic problem so seriously that it may be necessary in the future to construct a system of underground roads devoted exclusively to the use of fast motor traffic to be connected with motor boulevards in the outer districts of the city. In London there are 400,000 motor vehicles in use. Montreal surface traffic has reached "the point of saturation" and the city can only continue as the metropolis of Canada by the creation of a comprehensive system of rapid transit.

Mr. Williamson complimented the city commissioners of Montreal on their courage in refusing to sanction the sky-scraper. Montreal has room to spread itself and there is no reason for building up in the air, darkening the streets, increasing the already overcrowded thoroughfares and inviting the elements to run riot in the canyons of the city. If St. Catherine street were built up to twenty storeys new sewerage problems would be forced upon the city at the cost of many millions of dollars and traffic regulations would become almost impossible.

While admitting that the expenditure for an underground system of transit could not be afforded just now, Mr. Williamson stated that there was no reason why preparation should not be made for what was inevitable. A year would be needed for examinations, borings and plans and four years to carry out the project.

THE MAIN ARTERIES OF MONTREAL

BY G. R. MACLEOD, B.A., Sc

Engineer of Technical Services, Montreal.

Mr. MacLeod outlined and illustrated by specific references to some of the main artery problems of the city of Montreal the need for a comprehensive plan to which all improvements should have reference in the interests of civic economy and efficiency. He regarded it as axiomatic that any project for the future physical betterment of Montreal, such as the opening up of a new thoroughfare or the widening of an existing thoroughfare, should be considered as imperfectly conceived unless it were a part of a general plan for the improvement of the city as a whole. It would, for instance, be improper to lay out a project for an important new thoroughfare to extend, say, from Craig St. towards the Riv. des Prairies to relieve the congestion on such thoroughfares as St. Lawrence and St. Denis, unless at the same time the whole future plan of the city between Mount Royal Park and Maisonneuve Park be studied and dealt with in a general plan. Furthermore any such north-and-south thoroughfares could not be very well finally settled until it was clearly shown what effect this would have on the more important thoroughfares to be crossed, such as St. Catherine St. In other words, the location, character and the extent of even one thoroughfare or boulevard should never be settled without careful consideration of a plan ensemble. Definite conclusion should be reached that the individual project to be carried out at the time would be certain to harmonize to the best advantage possible with subsequent projects, even if the latter are to be deferred for many years.

Mr. MacLeod illustrated the practical nature of town planning as distinct from merely decorative betterment of a city by taking the area directly east of Mount Royal from Park Ave. to the Angus shops of the C.P.R., a distance of 9,700 feet, and showing that the bulk of the through traffic of this area is confined to five principal streets, namely, Park Ave., St. Lawrence, St. Denis, St. Hubert, Papineau and Iberville streets, the spacing between these (beginning at Park Ave.) being 1,500 ft., 1,600 ft., 900 ft., 3,000 ft., and 2,700 ft. The problem of the future would be to supplement these five thoroughfares either by opening up additional surface streets or by supplying underground arteries.

The work of the town planning engineer would be to determine, as far as possible, the future requirements of this whole territory, estimating the population to be served, the daily rush hours, intensity of travel to and from business and the best location of the lines over which it might be most expeditiously and economically transported and to determine the most suitable spacing of the parallel radial arteries to be adopted for the whole future development.

The difficulty of determining such matters was not so great as the difficulty of obtaining the consent of public administrations to the necessity of making surveys and studies and of adopting a general plan of future development after it had been prepared and safeguarding it from alterations that would destroy its utility. It was almost safe to predict that almost any town planning scheme would be subjected to criticism and opposed by many varying interests. Some would regard it as too ambitious and expensive; others, equally sincere, would not consider it ambitious enough and others, less sincere, would oppose it for political reasons or because their own private interests were not served. But he was convinced that it was far better to encounter such difficulties and fight them to the bitter end than to tolerate the unsatisfactory results and the waste of public funds that would be the outcome of executing public improvement of this kind with a haphazard plan or no plan at all. It was clear that a campaign to arouse and educate public opinion on the need of a real city plan survey and the importance of having these studies and traffic survey made adequate and complete was necessary.

Mr. MacLeod called attention to one curious example of faulty planning. Any artery of traffic should have its greatest capacity where it passed through the middle of the city, that is, where traffic is most dense and where the intersecting traffic lines are heaviest. Sherbrooke St. has a width of 80 to 84 feet from the western city limits of Montreal to Union Ave., and a width of 100 feet is provided from Parc Lafontane to the eastern limits, but between Union Ave. and Parc Lafontaine, where the flow of traffic is heaviest and the interruptions caused by the north-and-south traffic are most frequent, the present width is from 50 to 60 feet. Furthermore, the homologated plan prepared about nine years ago provides for a future width of only 80 ft. on this portion, where the greatest width of all is needed.

Numerous examples of the same kind can be found, in the most important thoroughfares in Montreal: St. Catherine, Bleury, St. Lawrence and St. Denis are among those most seriously at fault.

Dealing with the question of artificial barriers to the free circulation of traffic Mr. MacLeod gave special attention to the railway lines, especially where the terminals cover wide areas with many tracks and buildings. The main lines of the Grand Trunk, consisting of four to twenty tracks, are crossed by twenty-six streets at grade, four subways and one overhead bridge, while about half a dozen streets which exist on both sides of the railway do not cross it.

The Canadian Pacific between Windsor Station and Montreal West passes about forty streets which would in the natural course extend north and south, but only nine of these cross the railway (eight subways and one grade crossing). Needless to say the very large area of the city to the south of these two railways is very seriously handicapped.

The Canadian Pacific line from Place Viger to Côte des Neiges passes about sixty streets which would naturally cross its right-of-way, but for these there are only nine bridges and five level crossings; while on the Quebec line (Mile End to Bordeaux) there are only three street crossings in 4¾ miles.

The Canadian Northern Quebec line crosses about sixty streets within the limits of Montreal; about half of these streets cross the railway at grade and there are no subways or bridges.

It can readily be seen that on the west, the southwest, the east and the north, large and important sections of the city are more or less cut off from the rest.

Mr. MacLeod was convinced that the engineers who are to be entrusted with working out the city improvement plan will find themselves confronted by very serious problems indeed until the question of grade separation for street crossings of railways with possible consolidation of railway terminals, in their relation to important arteries of city traffic, shall have been permanently determined.

CONGESTION IN CITIES.

BY M. AIME COUSINEAU, B.A.Sc.,

Sanitary Engineer, Montreal.

M. Aimé Cousineau contributed a valuable paper on the relation of sanitary engineering work to public hygiene and public health, opening his address with the startling statement that human mortality is determined by living and working environment at least as much as by anything that is individual in the shape of inherited weakness or disregard of the laws of personal health. He urged, therefore, that it was surely the duty of administrations and governments to do everything possible to make the surroundings in which men and women live and work favorable to their development and to the conservation of their health. He recalled that attempts had been made, without success, to persuade the Government of Quebec to adopt a provincial town planning law for the regulation of the use of land and stated that such a law would be extremely useful in the city of Montreal and the adjoining municipalities and would tend to guarantee unity of action on the part of the public services concerned in the promotion of public health and well-being.

M. Cousineau showed that the work of the engineer in such activities as housing, transportation, water-works, sewers, sewage and refuse disposal, prevention of pollution in the air and the rational development of cities might have much more to do with the maintenance of public health than even the work of the physician. In the establishment of sanitary dwellings the engineer had to consider such questions as density of occupation, ventilation, temperature and humidificaton of the air in dwellings and such nice questions as the relation between congestion and overcrowding. The density of an area might be great without overcrowding, so long as the occupation was regulated in accordance with sanitary principles and on the other hand, an area of low density might suffer from overcrowding if the distribution within a certain space were neglected. Epidemics have their origin practically always in overcrowded and insanitary dwellings which are the hotbeds of tuberculosis and other contagious and infectious diseases. The sanitary engineer while appearing to spend money and to make others spend money is an economist in a very intensive sense.

There were two remedies for overcrowding: first, the perfecting of the public services, especially those having to do with building and the extension of the means of cheap transportation. M. Cousineau stated that a sanitary survey was in course of preparation in Montreal and from this investigation much valuable data would be acquired for the scientific study of the problem of congestion and overcrowding. It was, however, already ascertained that during the last few years the density of population per dwelling had greatly increased to the danger of public health, because of the lack of building and the increase of population. Where the average occupation per dwelling was three in 1905 it was now five. The scarcity of houses and the increasing rents—often for insanitary dwellings, out of all proportion to the value of the structure—made the improvement of sanitary conditions in the congested districts of Montreal exceedingly difficult; and the staff of sanitary inspectors and permanent officials was entirely inadequate to do the work that was necessary. There were regulations for the destruction of insanitary property and the prevention of overcrowding and subletting which could not be enforced because of the lack of new building and the need of a larger sanitary staff. A unified plan was necessary to deal with such questions as water supply, sewerage and sewage disposal and to avoid a multiplicity of public service utilities. The solution of the housing problem was particularly urgent. The future should be met with a plan of rational development which would assist greatly in avoiding ruinous expropriations due to the mistakes and shortsightedness of piece-meal and inadequate planning.

UNDERGROUND ELECTRIC CONDUITS

BY DR. L. A. HERDT,

Professor of Electricity, McGill University.

Dr. Herdt stated the case for underground electric conduits as compared with the aerial system and confidently claimed the support of town planners for the continuance of the Montreal project, which not only tended to rid the streets of many unsightly obstructions but also to greater efficiency in service and lower cost of maintenance. Dr. Herdt revealed the fact that there are twenty different

chartered electrical power companies, six electrical, telegraph, telephone and alarm companies with three municipal electrical services and street lighting, fire alarm and police alarm services. With all these companies furnishing their customers with electric energy in the centre of the city by means of wires and cables some amalgamation was obviously necessary and the twenty electrical power companies were operating under four main companies.

All the companies might be classed under two main groups, (a) electrical power companies furnishing light, heat and power; and, (b) the companies operating telegraph, telephone and alarm services. The transmission cables, the great arteries for the transmission of energy in the city, were placed underground some years ago but the second category of cables and wires were placed along the streets and multiplied so seriously that they became not only hideous to the sight but also dangerous to life. Some years ago it was decided to have this mass of aerial wires placed underground and in 1909 the Legislature of Quebec passed an act giving the city of Montreal the powers necessary for construction, operation and maintenance of underground electric conduits. A commission known as the "Commission of the Electrical Services of the City of Montreal" was created to put this plan into execution. The city of Montreal was authorized to borrow $5,000,000, to cover the expenses. Plans for the first trunk line of underground conduits were begun in 1913 but the work was suspended during the war and was only resumed last spring. Dr. Herdt set forth the advantages of distribution by underground conduits as follows:—

1. The appearance of the streets is improved appreciably. Some of the effects created by aerial construction are very ugly.

2. There is no obstacle in the way of the firemen when they desire to set up their apparatus and ladders at a fire.

3. Insurance premiums are reduced considerably when the posts loaded with aerial wires are removed from in front of large buildings.

4. The danger of people being struck by broken aerial cables is eliminated.

5. There is less interruption of service during wind and sleet storms.

6. The change from aerial cables to underground conduits permits the company concerned to construct anew, and in modern manner, its distribution system, which in many cases was installed in sections without any general plan. The result of the change is invariably a better service to the customers.

7. The cost of maintenance is much lower than in the case of aerial lines.

The disadvantages are: (1). The cost of the original construction, which is much higher than that of temporary aerial installation; and (2) the inconvenience of tearing up the streets and pavements to install the conduits. The latter inconvenience, however, is reduced to a minimum now that all the work necessary for several installations is carried out at the same time.

CIVIC ART FROM THE POINT OF VIEW OF THE SCULPTOR.

BY M. HENRI HEBERT, R.C.A.,

Sculptor, Montreal.

M. Hébert presented the important view that beauty is useful in civic art, as everywhere, and for the most part follows the path of enlightened simplicity. He hoped the time had passed when men said "before making things beautiful let them be practical." The popular impression that to make things beautiful is to have them complicated was the starting point of many misunderstandings. He pressed the need of an art commission such as exists in Paris and in some American cities which should have the responsibility of judging building plans, since those plans do so much to determine the character and reputation of cities. The mission of art is to charm and improve humanity. The dwellers in cities have not only physical needs but also intellectual and moral needs and aspirations which can only be guided and developed by appreciation of artistic values. These values can only be stated intelligibly by men who have devoted their lives to their study. The artist sees better and more quickly and looks constantly whereas the average individual looks but once and without the training that gives analytical insight. The artist may be lacking in mathematical or business ability but his judgment on things of beauty should not be ignored in the building of a city.

M. Hébert illustrated by calling attention to the matter of facades in connection with small dwellings in Montreal. Immediately after the period which saw the erection of the Molson building at the corner of Sherbrooke and St. Laurent streets, and the Prince of Wales terrace, which are excellent examples of architecture, the city fell into the hands of builders who saw fit to dispense with architects and who buried certain parts of Montreal under a mantle of ugliness.

These builders designed one or two types of houses, flanked by immense staircases, serving no useful purpose unless to get over the difficulty of fitting a staircase into a plan, and made them even worse by adding battlements of galvanized iron, outworks of turned wood, horse-shoes, wood imitating stone, and stone to which they gave the appearance of wood. Moreover they delighted in repeating these types ad nauseam by arranging them in groups of six, eight or ten.

When walking through streets so unfortunate as to contain several of these buildings, one cannot well resist the conviction that there is no uniform element, however clever it may be, which repro-

duced to satiety, can triumph over the monotony and ennui which accompanies it.

M. Hébert believes that if an art commission were established in such large cities as Montreal, not only would it have powerful influence in guiding future development towards order and beauty but such commission might also serve smaller towns and municipalities and thus exercise regional influence in artistic education.

THE AUTOMOBILE AND URBAN DEVELOPMENT.

BY JULES A. DUCHASTEL, B.A., Sc.

City Engineer, Outremont.

M. Duchastel called attention to the change in urban development due to the use of the automobile and dwelt upon the need of great arteries extending from the centre of the metropolis to the most remote suburb to provide free and rapid movement for motor traffic without endangering either pedestrians or other kinds of vehicular traffic. He believed that the extension of suburban areas was largely due to the use of the automobile.

Certain transformations had followed the use of motor traffic. Streets had been torn up and new sections rebuilt and special buildings for use as garages and parking places had been freely created.

Unfortunately, all these transformations had not always been in accordance with scientific ideas or under the direction of qualified engineers. The expansion of the suburb has too often been without definite plan. The subdivisions adopted have been rectilinear even where the topography did not lend itself to such a development. The old lines between the farms have been followed in preference to making a graceful bend around the obstacle that nature had placed with an art that no human brain could improve upon. Very often it was forgotten that a farm or land under cultivation is something quite different from a city.

Too frequently, also, main arteries of our cities have been built of materials not suited to the traffic they were destined to bear, and these roads have not lasted long. A good deal of public money has been lost in this way, but this extravagance is small in comparison with direct and indirect losses due to urban development that is ill-conceived and executed without being planned as a whole.

M. Duchastel believed that the autobus, before long, would be adopted extensively for transportation purposes and be recognized as a public utility as it was now regarded in the United States.

The problem of parking cars during business hours was in itself of sufficient importance to raise the question of better town planning. This problem affects Montreal probably more than any other city on the American continent because of the narrowness of the streets and the density of the traffic at certain hours. M. Duchastel said that it was becoming intolerable to allow parking of cars, for periods of the day, along the curbs in the business districts where the streets are narrow and the traffic very congested.

The automobile is also serving for rapid transportation of food stuffs from the centres of outlying districts and is thus creating an additional argument for the planning of arterial roads. There is also the fact that many business men, and even workmen, are enabled by use of the automobile to live in the country, amid healthful surroundings. Decentralization is thus facilitated, but the dependence of this movement upon good roads, is very considerable.

M. Duchastel deplored the fact that the cost of building sites was very great in Montreal and vicinity and compared very unfavourably with cities farther west. He thought this was perhaps due to the extreme congestion in and about Montreal and that the need for spreading out was manifest. Cities, he said, towns and villages should be developed in accordance with a complete and carefully studied plan so that there should not be bequeathed to coming generations a legacy of mistakes, costly and difficult to rectify.

THE RELATION OF BY-LAWS TO CITY PLANS.

BY PERCY E. NOBBS, M.A., F.R.I.B.A.

Mr. Percy Nobbs drew attention to the need, which is becoming ever more apparent, of bringing city by-laws into harmony with town planning intentions so that cities may pay definite regard to the promotion of comely buildings. He was concerned not so much with zoning regulations, which might eventually prevent the juxtaposition of ten storey with three storey buildings in undeveloped areas, but with better regulation of building within areas where change is going on. He instanced the case in Montreal of windows overlooking adjoining property when six French feet away from the boundary, with the corollaries that the distance is measured to the centre of the opening in the case of obliquely set windows, and that a window set at right angles to the boundary (as in a small well) may approach to the boundary line as closely as construction will allow. When applied to ten storey buildings, this law becomes a reductio ad absurdum and a negation of the human rights of adjoining proprietors, passers-by and future generations.

Apartment houses in the most fashionable quarters were permitted to deform whole streets and districts for a score of years or more with mighty brick flanks for which a stone facade of a few feet was to palliative. A rational system of by-laws to meet the case of high buildings would provide for setting back from the boundaries above the three storey level and for the use of homogeneous material on flanks, rear and front, in cases where it was obvious from the nature of things that going up ten

or more stories on one lot would discourage a similar operation on the adjoining one until the whole district had degenerated into a slum or become commercial. Ottawa was made hideous and ludicrous by the real estate development immediately to the south of the Parliament Buildings, which renders the terraces and open spaces of the parliament group an unpleasant place for anyone with architectural sense. But that development was mercantile. If apartment houses of the type recently evolved are to become common in Montreal, a vast slum problem will be prepared for the next generation to cope with, for such apartment houses are not readily convertible to loft or office purposes.

He took the view that quite as much can be done for the sane development of a city by foresight in the building regulations as by actual planning. For half a century and more, Montreal has been land poor and this is at the bottom of such anomalous construction as was mentioned. But it was quite easy to get rid of land poverty by judicious restriction of building. We are at the stage where writing off is an economic duty. If we have to write down our railway expenditures in the common interest, there is surely no reason why we should not be asked to write down our land valuations, which is what the public consent to more reasonable buildings regulations signifies.

THE RAILWAY PROBLEM IN RELATION TO THE CITY.

.... BY W. F. TYE,

Late Chief Engineer, Canadian Pacific Railway.

Mr. Tye put forward a very strong case for the formation in Montreal of a Town Planning Commission on which all the big interests, such as the railways, the tramways, the harbor board and the city, should be represented, and to the upkeep of which all should contribute.

To this commission, which would be presided over by an engineer of experience, would be brought all the great problems and contemplated undertakings for study and consideration. There were, for instance, the speaker pointed out, many problems connected with railways, sewerage and so on.

The railways could not be expected to join any particular proposition unless they had a voice in the decision of that proposition, and similarly the tramways and the harbor board should have representation.

Mr. Tye spoke of the railway problems of the future. The first place was given by him to the separation of street and railway grades, and the abolition of level crossings, while he considered the great move of the future must be in the direction of the consolidation of the government railways. The Grand Trunk Railway and the Canadian Northern, he pointed out, run to the same system, but have no physical connection in the city. The Grand Trunk must be elevated from Turcot to Bonaventure station, and then must be in some way connected with the Canadian Northern road which runs through the tunnel, and the two must get into the east end manufacturing district in some way. All these improvements, Mr. Tye emphasized, would be a matter for study by the commission.

A MESSAGE FROM MARS,

BY DR. OTTO KLOTZ,

Director of the Dominion Observatory.

Last Thursday night after the static of the atmosphere had quieted down following the wireless to Mars about the general election, I got in communication through the astronomer royal of Mars with its chief town planner, and he gave me a summary of what he had seen at their observatory after viewing the earth, particularly Canada and the United States.

You all know that the inhabitants of Mars, from the fact that Mars is much smaller than the earth, are giants compared with us. You see there is less "pull" on Mars than on the earth—their Civil Service Commission was instituted long, long ago. On account of the decreased weight of things the Martians will do more work in one day than any union here would allow to be done in three. For their government telescope, our telescope would only serve as an eye-piece; so you can readily understand that they know more about the earth than we do about Mars.

These Martians are of great intellect. Where we weigh our gray matter by ounces, they measure theirs by the bushel. But to get to the summary sent. I may say that we tuned our wireless to 20,000 metre wave-length, and with our amplifier got good notes.

The brief report began by saying that he did not understand why we were possessed to lay out all our towns and cities in rectangular blocks; of course he had not heard that Euclid had invented that banal figure of a parallelogram to which we were glued. He wondered if that was a community plan or only of a single individual who was allowed without let or hindrance to inflict such a plan, having roads straight up hill and down hill, quite oblivious of the topography and configuration of the ground, and lacking main thoroughfares and arteries. I didn't get a chance to talk back to him, to explain how in this free country we have hitherto acted.

Next he spoke of the dark canyons in some of the larger cities, where sky scrapers border the streets, excluding light and air from the inhabitants.

He noticed, too, vast volumes of smoke emanating from different parts of the cities from various industries—drifting across the city. This seemed strange to him. If smoke there must be why not

confine it to one part of the city so that the prevailing winds would carry it away from the city for the comfort of the inhabitants. "We on Mars, as you know," he continued, "have no smoke at all, our power and heat we derive from electricity directly from the sun, and also from the latent energy stored in atoms."

He noted too the promiscuity of our buildings—residential, coommercial, industrial, tenement, suburban, planless, senseless, often vicious.

Like ants, he saw the inhabitants moving about; swarms where there were fewest habitations with fresh air and sunlight and open patches. Again he wondered whether we had no gray matter and consideration for the welfare of the masses. "We do things differently on Mars," he said. "Every Martian is entitled to so many cubic feet of fresh air and sunlight, and every child to so many square feet of play-ground."

He admired our woods and rivers, and mountains, and plains, and said that Nature had been more kind to the earth than to Mars, but that the inhabitants of the earth had evidently not properly made use of and utterly failed in wisely planning for community living.

"With us," he continued, "community living is planned, and each community and place has its individual plan, adapted to the inhabitants and to the ground and surroundings and for the welfare of all."

"You have so much on the earth and so diversified a surface, that you have all the material and circhmstances for making beautiful, healthful cities where the work and inspiration of man can combine with nature's gifts to serve well the people in every walk of life, have great opportunitis for benefitting the public and for leaving a rich heritage to posterity."

His telephone rang and he was off, leaving me pondering on this message from Mars.

SUMMING UP.

A careful study of the various papers read at the Montreal conference would seem to supply a cumulative argument for the immediate consideration of a comprehensive plan for the future development of the city of Montreal. Such a plan would also serve —as American enterprise in city planning is demonstrating—to remedy to some extent many of the incongruities and inconveniences of past development which have created the problems so forcefully stated by the various speakers at the conference.

It will be seen that these problems are connected with those major activities of city life that affect the prosperity and reputation of the city and touch the welfare of every individual citizen. The seriousness of these problems from an economic, as well as a social point of view, was the burden of practically every address delivered. Many of these problems were stated by engineers of national and international reputation who were not visitors to the city, founding their remarks upon experiences gained elsewhere, but who were intimate by long years of study of and practical contact with the town planning needs and opportunities of Montreal itself.

It is noteworthy that while British town planning was conceived on virgin territory and has built up its argument by the founding of new cities on something like ideal lines, American city planning has set up its machinery of practical idealism in the middle of the congested city and every year is strengthening the rationale of its appeal for better and more wholesome as well as more beautiful city building.

In Miss Theodora Kimball's recent pamphlet entitled "Municipal Accomplishments in City Planning" it is shown that comprehensive re-planning has been adopted as municipal enterprise by all of the first 16 cities in the United States and by 57 of the first 100 cities. Of the 113 cities mentioned 62 have planning commissions which have learned the art and science of working in harmony with the permanent technical and other officials of the cities. In 65 cases the work of city planning was initiated directly by and the work done by and for municipal governments; in 25 cases the work was begun by citizens' committees, women's clubs and special civic organizations which supplied the first finances and the driving idealism that eventually enlisted the sympathies of city fathers and of official bodies who had the greater power to make city planning a great public enterprise.

It is interesting also to see that city planning has created a new outlook for certain recognized technical professions such as engineers, surveyors, architects and landscape architects. In the cities mentioned where re-planning is proceeding the landscape architect would appear to have been in most cases the moving spirit behind the work, but the directing work of the engineer has been at all times present though his individual contribution may have been less conspicuous as a permanent city official. Figures are given to show that the landscape architect has directed city planning work in 36 cases, the permanent city staff in 20 cases, the consulting town planning expert in 18 cases, the architect in 13 cases, the consulting engineer in 4 cases, the architect and landscape architect in 3 cases. There are 45 cases in which the landscape architect appears in an advisory capacity, 32 in which the engineer appears in the same role, 22 in which the town planning expert appears and 18 where the services of the architect were in demand.

Published bimonthly by the Town Planning Institute of Canada, Ottawa. Subscription price, $2.00 a year.
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